cetes (*5, 8, 19*). Bessey (*2*) regards the second blepharoplast as a vestige of the biflagellate condition, indicating that the Myxomycetes and the Plasmodiophorales have arisen from a common ancestor. He considers the loss of the second flagellum as evidence that the Myxomycetes are of higher phylogenetic position.

Insofar as flagellation is of phylogenetic significance, the existence of the second flagellum in the swarm-cells of Myxomycetes as demonstrated by this study, may indicate a closer relationship with the Plasmodiophorales than has recently been supposed.

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ORNITHOLOGY.—*A small collection of birds from Eritrea.*[1] Herbert Friedmann, U. S. National Museum.

During the early stages of World War II when North Africa was an important battlefield, numbers of American troops were stationed in Eritrea, a rather neglected and little-known part of eastern Africa. Two of the men who were destined to spend some time in that former Italian colony collected birds as time and opportunity permitted. Col. L. R. Wolfe sent in to the U. S. National Museum a small box containing eight birds. A second and larger shipment comprising about 300 specimens was most unfortunately lost in transit. Thane Riney similarly suffered the loss of the bulk of his collection, but was able to bring back some 37 birds, which he forwarded to the Museum of Vertebrate Zoology of the Univer-

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sity of California, where most of them are now. A small number, chiefly duplicates, were generously presented by that institution to the National Museum, where they together with Wolfe's handful of specimens, are incorporated with the large East African material previously brought together by Mearns and others.

Because of the paucity of published data concerning Eritrean birds I thought it advisable to put on record the contents of the Wolfe and Riney collections, small though they be, and, thanks to the cooperation of Dr. Alden H. Miller and Dr. Frank A. Pitelka, I have been able to examine all the specimens and to combine them in this report. A collection containing only 34 species could hardly be expected to yield many new facts, but as may be seen from the subjoined annotated list, a few items of interest have been found to be contained in it.

Family Accipitridae: Hawks, Eagles, and Kites

Elanus coeruleus coeruleus (Desfontains)

Falco coeruleus Desfontains, Hist. (i.e., Mém.) Acad. Roy. Paris, for 1787: 503. 1789 (near Algiers).

One specimen, in somewhat abraded plumage, was collected at Ghinda, altitude 962 meters, on February 2, 1943, by Thane Riney.

Melierax metabates metabates Heuglin

Melierax metabates Heuglin, Ibis 1861: 78 (White Nile between 6° and 7° lat. N.).

During August (16–26), 1942, Wolfe collected an adult male, adult female, and a juvenal male 15–20 miles south of Gura. Riney obtained an adult (unsexed) between Cheren and Agordat, on December 12, 1942. The very extensive white freckling on the secondaries and inner primaries of the adults suggests that they may be somewhat intermediate between *neumanni* and true *metabates*, but nearer to the latter. They have the barred upper tail coverts of the nominate race.

Sclater and Mackworth Praed (Ibis 1919: 702) consider all Sudanese birds south of Khartoum and north of Lake No as intermediate between the two races. Moltoni and Rusconi (Gli Uccelli dell' Africa Orientale Italiana 2: 240. 1942) record *neumanni* from Eritrea near the border of the Red Sea Province of the Sudan, and *metabates* from the rest of Eritrea.

The birds are rather small, the adult male having a wing length of 300, the female of 307 mm. In this respect they approach the southwest Arabian race *ignoscens*.

The August birds show evidences of molting.

The juvenal female is slightly more rufescent on the breast and darker on the upperparts than comparable birds from extreme northwestern Uganda.

Buteo rofofuscus augur (Rüppell)

Falco (Buteo) augur Rüppell, Neue Wirbelth., Vög.: 38, pl. 16. 1836 (Abyssinia).

A female was taken by Riney about 20 km from Decamera, on January 1, 1943, at an elevation of 2,000 meters. A second specimen is unfortunately without data of any kind. Both are in the light phase.

Lophaetus occipitalis (Daudin)

Falco occipitalis Daudin, Traité 2: 40. 1800 (the Anteniquoi country, i.e., Knysna district, Cape Province).

Wolfe collected a male and an unsexed bird, both adults, 15–20 miles south of Gura, August 16, 1942. He found the crested eagle not uncommon at elevations of about 5,000 feet.

Aquila rapax raptor Brehm

Aquila raptor Brehm, Naumannia 1855: 13 (Blue and White Nile).

An adult female in worn plumage was taken by Riney on a nest in a baobab tree, south of Barentu, January 17, 1943. The date is in agreement with Blanford's observation (Geol. and Zool. Abyss.: 295–296. 1870) that in Ethiopia the birds breed in January.

Circus pygargus (Linnaeus)

Falco pygargus Linnaeus, Syst. Nat., ed. 10, 1: 89. 1758 (Europe).

Riney collected an unsexed bird (female by plumage) 5 km west of Asmara at an elevation of 2,409 meters, on January 4, 1943, when he saw it foraging over open fields. The bird is in rather poor plumage and is molting its remiges, making definite identification somewhat difficult. The third primary, from the outside, is only partly grown in, while the remainder of the remiges is considerably abraded.

Montagu's harrier is a Palearctic bird and

comes into Africa only during the northern winter. In eastern Africa it has been recorded all the way to South Africa.

Family Falconidae: Falcons

Falco naumanni pekinensis Swinhoe

Falco cenchris var. *pekinensis* Swinhoe, Proc. Zool. Soc. London 1870: 442 (Shihshanling (Ming Tombs) near Peking).

An adult male, taken near Asmara, 2,371 meters, on January 31, 1943, by Thane Riney, is in somewhat worn plumage and differs from the nominate race in its darker rufescent back. Archer and Godman (Birds of British Somaliland and the Gulf of Aden 1: 180–183. 1937.) consider this race a rare straggler to their area and suggest that it may follow down the Nile Valley to the west. If we were to apply this suggestion to Eritrea we should have to consider the bird a rare visitor to that country as well, which actually seems to be the case; in fact, Riney's specimen is the first record for Eritrea, at least as far as published data indicate. The bird is known to reach South Africa during the northern winter and is probably commoner along the eastern part of the continent than the few records would indicate.

Falco alopex (Heuglin)

Tinnunculus alopex Heuglin, Ibis 1861: 69, pl. 3 (Gallabat, Egyptian Sudan).

A male, collected by Wolfe, 15 miles south of Gura, August 16, 1942, is noticeably darker than a female from Talodi, Kordofan, Anglo-Egyptian Sudan, the only other example of the species available for comparison. Our male also differs from this female in having the black bars on the median rectrices more complete, less marginal in character, and in having those on the lateral rectrices less broadened. There is a tendency in the female to have these bars dilated marginally on all the tail feathers, but this is most highly developed on the outer ones.

Bannerman (Birds Tropical West Africa 1: 216–219. 1930) has given more extensive comments on this species than any other recent writer. He states that the wing measurement of the males varies from 266 to 293 (our example measures 276 mm). His account is unfortunately garbled by some misprinting of his original intention as he then goes on to state that the "largest birds are those from N. Nigeria with wings ♂ 212 ♀ 210. . . . "

The intensity (darkness or paleness) of the coloration appears to vary individually in this kestrel. Bannerman had 23 specimens for study and found the darkest birds came from such widely separated areas as Kulikoro on the Niger River, Jebel Marra in Darfur Province, Anglo-Egyptian Sudan, and Ethiopia. On the basis of this spotty occurrence of dark birds (among which the present Eritrean example appears to belong) it seems impracticable to recognize Oberholser's race *eremica* from Togoland, which is based entirely on its paler tone. Bannerman (*loc. cit.*) has placed *eremica* in the synonymy of *alopex*, but, probably by oversight, he uses a trinomial for the latter.

Our specimen shows signs of molt in the remiges and rectrices. This suggests the possibility that its darker tone may be due to the freshness of its plumage and that paler birds may show the results of fading under the hot sun in the dry open country it inhabits.

Falco tinnunculus tinnunculus Linnaeus

Falco tinnunculus Linnaeus, Syst. Nat., ed. 10, 1: 90. 1758, (Europe; restricted type locality, Sweden *apud* Hartert).

Riney shot a female 10 km from Decamera, at 2,050 meters, on January 1, 1943. The bird has a wing length of 258 mm and is therefore too large to be *F. t. archeri* Hartert and Neumann from the Waghar Mountains, and also too large to be *F. t. carlo* (Hartert and Neumann) of the mountains of East Africa. In coloration it is slightly darker than typical *tinnunculus* but not as dark as *carlo*. It seems best treated as a darkish example of the nominate race.

Family Phasianidae: Pheasants, Francolins, and Quails

Francolinus erckelii erckelii (Rüppell)

Perdix erckelii Rüppell, Neue Wirbelth. Vög.: 12, pl. 6. 1835 (Taranta Mountains, Abyssinia).

Erckel's francolin is a poorly known bird, and any additional material of it is still of interest. Riney collected a female, 40 km north of Asmara, 2,390 meters altitude, on January 9, 1943. It is smaller than any mentioned by Moltoni and Rusconi (Gli Uccelli dell' Africa Orientale Italiana 3: 22–25. 1944.) having a wing length of only 202.6 (their series ranges from 205 to 230), and a tail length of 91 (as against 110–140 mm in Moltoni's series).

Moltoni and Rusconi write that the race *pentoni* ranges from the Red Sea Province of the Sudan into the adjacent parts of Eritrea, but as far as I can learn no actual specimens of this paler, grayer race have been taken in Eritrea.

Family Columbidae: Pigeons and Doves

Oena capensis capensis (Linnaeus)

Columba capensis Linnaeus, Syst. Nat., ed. 12, **1**: 286. 1766. (Cape of Good Hope).

Riney collected a male in low bush near the Decamera turn off on the Adi-Ugri Road, 45 km south-southwest of Asmara, on January 1, 1943. The bird is in abraded plumage.

Family Apodidae: Swifts

Apus aequatorialis aequatorialis (Müller)

Cypselus aequatorialis Müller, Naumannia **1**: 27. 1851 (Abyssinia).

A female mottled swift was taken by Riney on the Citao compound at Asmara on February 2, 1943. It is a bird in rather worn feathering.

Family Coliidae: Colies, or Mousebirds

Colius striatus leucotis Rüppell

Colius leucotis Rüppell, Mus. Senck. **3**: 42, pl. 2. 1839 (Temben Province, Abyssinia).

Two unsexed examples of this common species were obtained by Riney, one on the Adi-Ugri Road at the base of the Asmara Plateau, on November 14, 1942, and one near Cheren, on March 15, 1943. This race inhabits Eritrea, Bogosland, northern Ethiopia, and adjacent portions of the Anglo-Egyptian Sudan.

Family Coraciidae: Rollers

Coracias naevius naevius Daudin

Coracias naevia Daudin, Traité **2**: 258. 1800 (Senegal).

Wolfe obtained one specimen, unsexed, south of Gura, on July 26, 1942. It has the white stripes on the anterior underparts unusually broad and has the purplish brown of the top of the head and the greenish of the back slightly darker than in Ethiopian specimens. It has an unusually large bill, the culmen measuring 47 mm from the base; the largest billed birds from Ethiopia and Kenya Colony seen having culmen lengths of 43 mm or less. The specimen was molting when collected, the outer remiges still showing their sheaths basally.

Family Upupidae: Hoopoes

Upupa epops somaliensis Salvin

Upupa somaliensis Salvin, Cat. Birds Brit. Mus. **16**: 13. 1902 (Somaliland).

On February 2, 1943, Riney obtained an adult female on the acacia plain between Nefasit and Decamara, altitude 1,825 meters. It matches Ethiopian and East Africa examples very well. This is the resident race, the nominate one being only a winter visitor from Europe.

Family Bucerotidae: Hornbills

Tockus nasutus nasutus (Linnaeus)

Buceros nasutus Linnaeus, Syst. Nat., ed. 12, **1**: 154. 1766 (Senegal).

The gray hornbill is represented by a head collected south of Gura, in August 1942, by Colonel Wolfe.

Tockus erythrorhynchus erythrorhynchus (Temminck)

Buceros erythrorhynchus Temminck, Pl. Col., livr. 36: sp. 19. 1823 (Senegal).

Riney collected a male red-billed hornbill on the plains west of Agadat, 700 meters altitude, on December 13, 1942, and Wolfe shot another individual south of Gura, July 26, 1942. Riney's bird shows active molt in the tail.

Family Timaliidae: Babblers

Turdoides leucopygia leucopygia (Rüppell)

Ixos leucopygius Rüppell, Neue Wirbelth., Vög.: 82, pl. 30, fig. 1. 1840 (coast of Abyssinia).

Riney met with this northern race of the white-rumped babbler 40 km north of Asmara, 2,390 meters altitude, on January 9, 1943, when he collected a male and an unsexed specimen. This race has the whole forehead and forecrown white, while the four more southern subspecies have the white reduced or absent.

The male shows signs of active molt in the wings.

Family Turdidae: Thrushes, Chats, and Wheatears

Monticola solitaria solitaria (Linnaeus)

Turdus solitarius Linnaeus, Syst. Nat., ed. 10: **1**: 170. 1758 (Italy, *apud* Hartert).

The blue rock-thrush of central and southern Europe winters in northeastern Africa, along

with the race *longirostris* of western Asia. Riney collected a female 20 km south-southwest of Asmara, 1,930 meters altitude, on January 1, 1943, which agrees with the nominate form in its dark and brownish color (the western Asiatic form is paler and more grayish).

Oenanthe hispanica melanoleuca (Güldenstadt)

Muscicapa melanoleuca Güldenstadt, Nov. Com. Petrop. **19**: 468. 1775 (Georgia; Caucasus).

An unsexed specimen of the eastern black-eared wheatear was obtained by Riney 20 km south-southwest of Asmara, 1,930 meters altitude, on January 1, 1943. The race is known to winter from Egypt to Darfur Province in the Angol-Egyptian Sudan and to Eritrea and to southwestern Arabia (Aden Protectorate).

Oenanthe lugubris (Rüppell)

Saxicola lugubris Rüppell, Neue Wirbelth., Vög.: 77, pl. 28, fig. 1. 1837 (Simen, Abyssinia).

The Abyssinian black chat was met with by Riney on January 1, 1943, when he collected an adult male and female 20 km south-southwest of Asmara, at an altitude of 1,930 meters. These two specimens are definite evidence that Zedlitz (Journ. für Orn. 1911: 85) was wrong when he suggested that this species was migratory in Eritrea, leaving for the south after breeding, and returning in the latter part of March. Together with December and January birds previously recorded from Ethiopia (Friedmann, U. S. Nat. Mus. Bull. 153, pt. 2: 135. 1937.) these examples indicate that the migration, if any, is very limited in geographical extent.

Both specimens are in fairly fresh plumage; the female has pale tips on the outer rectrices (curiously enough, only on the left side of the tail, but not on the right), the male has none at all.

Oenanthe isabellina (Temminck)

Saxicola isabellina Temminck, Pl. Col., livr. 79: pl. 472, fig. 1. 1829 (Nubia).

Riney obtained a female isabelline chat in the low brushland of the Asmara Plateau, 2,040 meters elevation, near Asmara, on January 1, 1943. The species breeds in Europe and east to Mongolia and winters in northeastern Africa, Arabia, and India.

Cossypha semirufa semirufa (Rüppell)

Petrocincla semirufa Rüppell, Neue Wirbelth., Vög.: 81. 1840 (Abyssinia).

In the dense forest of Monte Marara, 2,340 meters altitude, about 40 km north of Asmara, on January 9, 1943, Riney shot an example (unsexed) of this robin-chat. This must be about as far north as it is known to occur; I know of no published records north of Bogosland.

Family Muscicapidae: Old World Flycatchers

Bradornis pallidus bowdleri Collin and Hartert

Bradornis pallidus bowdleri Collin and Hartert, Nov. Zool. **34**: 52. 1927 (new name for *B. p. sharpei* Rothschild, 1913, not *B. sharpei* Bocage, 1894: Abyssinia).

One female was collected by Riney near Decamera, 2,000 meters altitude, on January 1, 1943. This race of the pale flycatcher inhabits northern Ethiopia (south to the vicinity of Adis Ababa) and Eritrea, where it lives on open bushy areas.

Batis minor erlangeri Neumann

Batis minor erlangeri Neumann, Journ. für Orn. 1907: 352 (Gara Mulata, near Harrar, Ethiopia).

Riney obtained an unsexed specimen (male by plumage characters) near Decamera, 2,000 meters altitude, on January 1, 1943. Inasmuch as this example agrees with Ethiopian specimens of *erlangeri* and shows no approach to the characters ascribed to *chadensis*, I have no hesitancy in so classifying it, although it extends the known range of *erlangeri* northward a very considerable distance. It was known previously from the Harrar area in central eastern Ethiopia, southwest to southern Shoa, and to Lake Stefanie.

Family Motacillidae: Wagtails and Pipits

Anthus richardi cinnamomeus Rüppell

Anthus cinnamomeus Rüppell, Neue Wirbelth., Vög., 103. 1840 (Simien Province, Abyssinia).

On January 1, 1943, Riney collected a female of this pipit about 15 km south-southwest of Asmara, at 2,040 meters altitude. The bird was seen on the ground in low brushlands. The specimen, which is in somewhat frayed plumage agrees well with others from Ethiopia.

Family Laniidae: Shrikes

Lanius collaris humeralis Stanley

Lanius humeralis Stanley, *in* Salt, Travels in Abyssinia . . . , Appendix, li, no. 4. 1814 (Chelicut, Abyssinia).

One female, collected by Riney 15 km south southwest of Asmara, 2,040 meters, January 1, 1943, is of this subspecies, which occurs from Eritrea and Ethiopia, south through eastern Africa (west to central Uganda), to Zululand and Natal.

Family Prionopidae: Wood-shrikes

Prionops cristata cristata Rüppell

Prionops (*Lanius*) *cristatus* Rüppell, N. Wirbelth., Vög., lief. 183: 30, pl. 12, fig. 2. 1837 (coast at Massawa).

Riney obtained an unsexed bird at Ghinda, 962 meters altitude, on February 2, 1943. The specimen is in very worn feathering.

Family Sturnidae: Starlings

Lamprocolius chalybeus chalybeus (Hemprich and Ehrenberg)

Lamprotornis chalybeus Hemprich and Ehrenberg, Symbolae physicae, folio y: pl. 10. 1828 (Ambukol, Dongola).

A female, showing evidence of active molting in the wings, was collected by Riney 30 km from Asmara, 1,930 meters altitude, on January 1, 1943.

Family Ploceidae: Weaverbirds

Sporopipes frontalis abyssinicus Mearns

Sporopipes frontalis abyssinicus Mearns, Smithsonian Misc. Coll. **56**(14): 7. 1910 (Abyssinia).

Three examples of the speckle-fronted weaver were collected by Riney, 2 males and 1 female, on the acacia plain between Nefasit and Decamera, elevation 1,852 meters, February 7, 1943. One of the males shows evidence of molting in the tail.

These specimens are somewhat darker on the upper surface of the wings than is the type, but this may be due to the fact that the latter is in very fresh plumage and has more extensive pale margins to these feathers.

Ploceus baglafecht baglafecht (Daudin)

Loxia baglafecht Daudin, *in* Buffon, Hist. Nat. (Didot's ed.), Quadrupeds **14**: 245. 1799 (actually 1802) (Abyssinia).

Riney collected a male, 40 km north of Asmara, 2,390 meters elevation, on January 9, 1943. This weaver is known to occur at altitudes of from 5,000 to 12,000 feet in Bogosland and Ethiopia.

Uraeginthus bengalus bengalus (Linnaeus)

Fringilla bengala Linnaeus, Syst. Nat., ed. 12, **1**: 323. 1766 ("Bengal"; Senegal substituted by Sclater, Syst. Avium Ethiop. **2**: 804. 1930).

One male and one female were taken by Riney on January 1, 1943 in low acacia-dotted open grassy country between Decamera and the Adi-Ugri Road, 2,000 meters elevation. The male had the testes enlarged. Both birds are in worn plumage.

I can see little advantage in accepting the recent suggestion that *bengalus* and its races are conspecific with the *angolensis* group. There is more to be said for Delacour's action in "lumping" *Uraeginthus* in the genus *Estrilda*, but even in this I hesitate to follow him as the cordon-bleus are a very distinctive section, at least, of the waxbill aggregate.

Family Fringillidae: Finches, Sparrows, and Buntings

Poliospiza tristriata tristriata (Rüppell)

Serinus tristriatus Rüppell, Neue Wirbelth., Vög.: 97, pl. 35, fig. 2. 1840 (Taranta Pass, Abyssinia).

Riney collected a female in the Bermuda grass at the base of the Asmara Plateau, at 1,930 meters elevation 20 km south-southwest of Asmara, January 1, 1943. This seedeater appears to range from altitudes of from 4,000 to 11,000 feet, and is reported (in literature) to be common in Eritrea and northern Ethiopia.

Fringillaria tahapisi septemstriata (Rüppell)

Emberiza septemstriata Rüppell, Neue Wirbelth., Vög.: 86, pl. 30. 1840 (Gondar, Abyssinia).

A male in fairly worn plumage was taken by Riney on January 1, 1943, 45 km from Asmara, 1,930 meters elevation.

This race of this rock bunting is characterized by the extensive rufescent area on the basal portion of the inner web of the outermost primary.